

INTEGRATED DISEASE MANAGEMENT

At all times - practice good farm hygiene - come clean - go clean

PLANNING		GROUND PREPARATION		PLANTING/EARLY SEASON		LATE SEASON		AFTER HARVEST		ROTATIONS	
Seedling diseases	<ul style="list-style-type: none"> Use a variety with good seedling vigour Use effective seed treatment fungicides 	<ul style="list-style-type: none"> Plant into well prepared, high, firm beds Carefully position fertiliser in the bed Plant into moisture rather than water-up 	Seedling diseases	<ul style="list-style-type: none"> Delay planting until temperature and moisture conditions are optimum. Be careful with the use of herbicides at planting 		Seedling diseases		Seedling diseases		<ul style="list-style-type: none"> Incorporate crop residues as early as possible - especially if a legume 	
Black root rot	<ul style="list-style-type: none"> Choose indeterminate varieties that have the capacity to 'catch up' later in the season 	<ul style="list-style-type: none"> Prepare beds well to optimise stand establishment and seedling vigour Pre-irrigate in preference to 'watering up' 	Black root rot	<ul style="list-style-type: none"> Time sowing to avoid cool temperatures if possible, but sow early if conditions are warm enough Replanting decisions should be made on the basis of stand losses, not the size of the seedlings. Watch for early onset of water stress (ie. because the root system is weak) and irrigate accordingly, but avoid waterlogging. 	<ul style="list-style-type: none"> Anticipate delayed growth and later maturity and manage the crop accordingly (black root rot 'steals' time from your crop). 	Black root rot		Black root rot		<ul style="list-style-type: none"> Rotate with non-host crops (eg. cereals, canola) for more than one season if possible. Biofumigation with woolly pod vetch or mustard (canola?) between consecutive cotton crops or after a wheat fallow. The success of biofumigation depends upon the growth of the biofumigation crop and good incorporation (at least four weeks before cotton). Avoid rotation with legumes (except vetch) and control alternative weed hosts (eg. Datura). Flooding of fields for 30 days during summer reduces the population of T. basicola dramatically. This option will be limited by the topography of fields and the availability of water. 	
Verticillium wilt	<ul style="list-style-type: none"> Use a resistant variety 	<ul style="list-style-type: none"> Provide balanced crop nutrition (especially nitrogen and potassium) 	Verticillium wilt	<ul style="list-style-type: none"> Avoid long periods of waterlogging Manage for earliness 	<ul style="list-style-type: none"> Manage for earliness Avoid late irrigations 	Verticillium wilt		Verticillium wilt	<ul style="list-style-type: none"> Incorporate crop residues as soon as possible after harvest Minimise the movement of crop residues in tailwater recirculation systems 	<ul style="list-style-type: none"> Rotation with non-host crops Control alternative weed hosts 	
Fusarium wilt	<ul style="list-style-type: none"> If your farm is free from this disease, try to keep it that way! Minimise the risks that could allow this fungus to be introduced onto your farm. For example, do not share machinery with known affected farms unless it has been cleaned to remove soil and plant debris. Provide an area at an appropriate place for incoming machinery and visitors to remove soil and be disinfected if they are not following the "Come Clean" protocols) Use the most resistant cotton varieties available, especially if Fov occurs in your district Ensure that seed is treated (eg. Quintozene and Apron) 		Fusarium wilt	<ul style="list-style-type: none"> Plant to avoid unnecessary stress to germination and early growth Control weeds during/between crops Minimise damage to roots during cultivation (eg. use a shielded sprayer to control weeds) Manage the crop to avoid stresses eg. waterlogging and over-fertilisation. Maintain farm hygiene and awareness Conduct regular inspections to allow early detection of any suspicious looking plants. If any are found, send immediately to QDPI for analysis. Educate farm workers what to look for and encourage reporting If Fov is confirmed, rogue and burn for small patches Solarisation may also be an appropriate treatment for small affected patches Isolate affected areas from irrigation flows and traffic to avoid spreading the fungus Minimise tailwater from affected fields 	<ul style="list-style-type: none"> Ensure that harvesting machinery is cleaned If Fov has been confirmed on your farm notify any contractors/your local gin before harvesting so that measures can be taken to avoid spreading the fungus to other fields on your property and to other regions Minimise tailwater from affected fields 	Fusarium wilt		Fusarium wilt	<ul style="list-style-type: none"> After harvest, retain crop residues on the surface for as long as possible before incorporation 	<ul style="list-style-type: none"> Selection and management of rotation crops is important as the pathogen is able to survive in association with the residues of non host crops. Summer flooding, if possible, has been shown to reduce spore levels significantly but does not eradicate the pathogen. 	
Alternaria leaf spot	<ul style="list-style-type: none"> Don't plant susceptible varieties in fields with infected residues from a previous crop retained on the surface. 	<ul style="list-style-type: none"> Incorporate residues from a previous crop. Provide balanced crop nutrition (especially potassium) 	Alternaria leaf spot			Alternaria leaf spot		Alternaria leaf spot	<ul style="list-style-type: none"> Incorporate crop residues as soon as possible after harvest 	<ul style="list-style-type: none"> Control alternative weed hosts and volunteer cotton. 	
Bacterial blight	<ul style="list-style-type: none"> Do not plant susceptible varieties in or near fields that contain residues of susceptible varieties grown in the previous season 		Bacterial blight			Bacterial blight		Bacterial blight	<ul style="list-style-type: none"> Thoroughly incorporate crop residues as soon as possible 		
Boll rots	<ul style="list-style-type: none"> Field drainage should not allow water to back-up into the field and inundate low bolls on plants near the tail drain 		Boll rots	<ul style="list-style-type: none"> Avoid very low plant populations which result in exposed soil that can be splashed up onto low bolls at the end of the season 	<ul style="list-style-type: none"> Avoid rank growth and a dense crop canopy if possible. 	Boll rots		Boll rots	<ul style="list-style-type: none"> Thoroughly incorporate crop residues as soon as possible 		